UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/625,202	07/21/2000	Natividadel Lobo	367.38797X00	5611

7590 10/06/2003

Carl I Brundidge
Antonelli Terry Stout & Kraus LLP
Suite 1800
1300 North Seventeenth Street
Arlington, VA 22009

EXAMINER	
MILLER, BRANDON J	

ART UNIT	PAPER NUMBER
2683	4

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/625,202	LOBO, NATIVIDADEL	
	Examiner	Art Unit	
	Brandon J Miller	2683	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 25-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-8, 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gudmundson in view of Yoshida.

Regarding claim 1 Gudmundson teaches a method for defining a relationship between frequency and amplitude of a pulse function for acting on a data stream for transmission in a telecommunications system in accordance with a predetermined modulation scheme (see col. 4, lines 63-67, col. 5, lines 1-50 and col. 9, lines 15-20 & 45-55). Gudmundson teaches defining the amplitude of a pulse function over a range of frequencies (see col. 5). Gudmundson does not specifically teach defining a desired cost parameter or a range of frequencies in dependence with

a desired cost parameter. Yoshida teaches defining a desired BER performance parameter and a range of frequencies in dependence with a desired BER performance parameter (see col. 2, lines 25-26 & 36-40, col. 3, lines 42-49, col. 4, lines 18-25), the BER performance parameter is a system parameter that is positive and gets smaller the better a system operates which relates to applicant's claimed definition of a cost parameter. It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include defining a desired cost parameter or a range of frequencies in dependence with a desired cost parameter because this would allow for improved data transmission over a radio path using multiple modulation techniques.

Regarding claim 2 Gudmundson teaches the amplitude of the pulse function over a range of frequencies is defined in an iterative process in which the pulse function is altered to achieve an acceptable balance of desired sensitivity (see col. 5). Yoshida teaches defining a desired BER performance parameter (see col. 2, lines 25-26 & 36-40, col. 3, lines 42-49, col. 4, lines 18-25), the BER performance parameter is a system parameter that is positive and gets smaller the better a system operates which relates to applicant's claimed definition of a cost parameter.

Regarding claim 3 Yoshida teaches weighting a desired BER performance parameter (see col. 4, lines 18-22), the BER performance parameter is a system parameter that is positive and gets smaller the better a system operates which relates to applicant's claimed definition of a cost parameter.

Regarding claim 4 Yoshida teaches an acceptable balance between a desired BER performance parameter that is achieved by optimizing the respective BER performance parameter with respective weightings (see col. 3, lines 42-49 and col. 4, lines 20-23), the BER

performance parameter is a system parameter that is positive and gets smaller the better a system operates which relates to applicant's claimed definition of a cost parameter.

Regarding claim 5 Yoshida teaches optimization performed using a coded sequence of information (see col. 3, lines 42-53).

Regarding claim 6 Yoshida teaches a cost parameter that is selected from one or more of the group including power efficiency, spectral efficiency, bit error rate, AFC, Nyquist, and energy (see col. 2, lines 37-39 and col. 3, lines 42-49).

Regarding claim 7 Gudmundson teaches a pulse function generator for converting a data stream in accordance with a pulse function (see col. 5).

Regarding claim 8 Gudmundson teaches a modulator for providing a signal for transmission in a telecommunication system and means for shaping a data stream in accordance with a pulse function generator (see col. 5 and col. 7, lines 10-23).

Regarding claim 10 Gudmundson and Yoshida teach a device as recited in claim 8 except for means for shaping that includes a look-up table. Gudmundson does teach means for shaping that includes multiple data samples (see col. 5 and col. 7, lines 45-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include means for shaping that includes a look-up table because this would allow for efficient pulse shaping in a data transmission system.

Regarding claim 11 Gudmundson teaches a modulator and a demodulator (see col. 7, lines 14-15 and col. 8, lines 11-12).

Regarding claim 12 Gundmundson teaches a transceiver (see col. 6, lines 64-67).

Regarding claim 25 Gundmundson teaches drawings defining a relationship between frequency and amplitude of a pulse function for acting on a data stream for transmission in a communication system in accordance with a modulation scheme (see col. 5 and FIGS. 3A, 3B, and 3C).

Regarding claim 26 Gundmundson teaches drawings defining a modulation scheme (see col. 5 and FIGS. 3A, 3B, and 3C).

Regarding claim 27 Gundmundson teaches drawings defining a pulse function generator (see col. 5 and FIGS. 3A, 3B, and 3C).

Regarding claim 28 Gundmundson teaches drawings defining providing a signal for transmission (see col. 5 and FIGS. 3A, 3B, and 3C).

Regarding claim 29 Gundmundson teaches drawings defining a transmitter and/or receiver (see col. 6, lines 64-67 and FIGS. 4A and 4B).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gudmundson in view of Yoshida and Black.

Regarding claim 9 Gudmundson and Yoshida teaches a device as recited in claim 7 except for means for shaping that comprise a filter. Gudmundson does teach means for shaping a data stream in accordance with a pulse function generator (see col. 5). Black teaches a compensation filter (see col. 59-61). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include means for shaping that comprise a filter because this would allow for efficient pulse shaping in a data transmission system.

Claims 13-14, and 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gudmundson in view of Yoshida and Honkasalo.

Regarding claim 13 Gudmundson and Yoshida teach a device as recited in claim 7 except for a modulator for providing a signal for transmission in a TDMA telecommunications system in which a channel is a combination of frequency and timeslot in accordance with a predetermined modulation scheme wherein the data stream is shaped in accordance with a pulse generator prior to modulation with a carrier signal. Gudmundson does teach a modulator for providing a signal for transmission in which a channel is a combination of frequency and timeslot in accordance with a predetermined modulation scheme wherein the data stream is shaped in accordance with a pulse generator prior to modulation with a carrier signal (see col. 5). Honkasalo teaches providing a signal for transmission in a TDMA telecommunications system (see col. 4, lines 25-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include a modulator for providing a signal for transmission in a TDMA telecommunications system in which a channel is a combination of frequency and timeslot in accordance with a predetermined modulation scheme wherein the data stream is shaped in accordance with a pulse generator prior to modulation with a carrier signal because this would allow for improved data transmission over a radio path using multiple modulation techniques.

Regarding claim 14 Gudmundson and Yoshida teach a device as recited in claim 7 except for a providing a signal for transmission in a CDMA telecommunications system in accordance with a predetermined modulation scheme wherein the data stream is shaped in accordance with a pulse generator prior to modulation with a carrier signal. Gudmundson does teach a modulator

for providing a signal for transmission with a predetermined modulation scheme wherein the data stream is shaped in accordance with a pulse generator prior to modulation with a carrier signal (see col. 5). Honkasalo teaches providing a signal for transmission in a CDMA telecommunications system (see col. 4, lines 25-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include providing a signal for transmission in a CDMA telecommunications system in accordance with a predetermined modulation scheme wherein the data stream is shaped in accordance with a pulse generator prior to modulation with a carrier signal because this would allow for improved data transmission over a radio path using multiple modulation techniques.

Regarding claim 17 Gudmundson does teaches a communication device for providing a signal for transmission in which a channel is a combination of frequency and timeslot in accordance with a predetermined modulation scheme wherein the data stream is shaped in accordance with a pulse function generator for shaping a data stream in accordance with respective pulse functions responsive to operation of the data transmission system (see col. 5). Gudmundson does not specifically teach a dual mode communication device operable in a first mode in a TDMA telecommunications system and a second mode in a CDMA telecommunications system. Honkasalo teaches a communication system with a mobiles station and a base station operable in different multiple access methods including TDMA and CDMA (see abstract and col. 4, lines 25-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include a dual mode communication device operable in a first mode in a TDMA telecommunications system and a

second mode in a CDMA telecommunications system because this would allow for improved data transmission over a radio path using multiple modulation techniques.

Regarding claim 18 Gudmundson teaches a communication device with a first pulse function generator for converting a data stream in accordance with a pulse function shaped in dependence on system sensitivity, a second pulse function generator for converting a data stream in accordance with a pulse function shaped in dependence on system sensitivity, and selecting the pulse function generator wherein at least one of the pulse functions is shaped in accordance with a relationship (see col. 5). Gudmundson does not teach a dual mode communication device operable in a first mode when a first set of cost parameters are desired and in a second mode when a second set of cost parameters are desired. Yoshida teaches defining desired BER performance parameters (see col. 2, lines 25-26 & 36-40, col. 3, lines 42-49, col. 4, lines 18-25), the BER performance parameters are system parameters that are positive and get smaller the better a system operates which relates to applicant's claimed definition of a cost parameter. Honkasalo teaches a communication system with a mobile station and a base station operable in different multiple access methods including TDMA and CDMA (see abstract and col. 4, lines 25-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include a dual mode communication device operable in a first mode when a first set of cost parameters are desired and in a second mode when a second set of cost parameters are desired because this would allow for improved data transmission over a radio path using multiple modulation techniques.

Regarding claim 19 Honkasalo teaches multiple data rates (see col. 6, lines 53-65).

Regarding claim 20 Honkasalo teaches a data rate that supports voice applications and a data rate that supports data applications (see col. 5, lines 17-20).

Regarding claim 21 Honkasalo teaches a communication device operable in a TDMA telecommunications system (see abstract and col. 4, lines 25-34).

Regarding claim 22 Honkasalo teaches a Gaussian shape (see col. 13, lines 4-6).

Regarding claim 23 Gudmundson teaches a communication device with a modulator for modulating a data stream with a carrier signal in accordance with a predetermined modulation scheme (see col. 7, lines 13-17), a first pulse function generator for converting a data stream in accordance with a pulse function shaped in dependence on system sensitivity, a second pulse function generator for converting a data stream in accordance with a pulse function shaped in dependence on system sensitivity, wherein at least one of the pulse functions is shaped in accordance with a relationship (see col. 5). Gudmundson does not teach a dual mode communication device operable in a first mode when a first set of cost parameters are desired and in a second mode when a second set of cost parameters are desired. Yoshida teaches defining desired BER performance parameters (see col. 2, lines 25-26 & 36-40, col. 3, lines 42-49, col. 4, lines 18-25), the BER performance parameters are system parameters that are positive and get smaller the better a system operates which relates to applicant's claimed definition of a cost parameter. Honkasalo teaches a communication system with a mobile station and a base station operable in different multiple access methods including TDMA and CDMA (see abstract and col. 4, lines 25-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include a dual mode communication device operable in a first mode when a first set of cost parameters are desired and in a second mode

when a second set of cost parameters are desired because this would allow for improved data transmission over a radio path using multiple modulation techniques.

Regarding claim 24 Gudmundson teaches selecting a modulation scheme for a communication system, defining a pulse function for a modulation scheme, and using a modulation scheme, which gives a good resultant response given the desired one (see col. 5). Gudmundson does not teach defining a pulse function for a first and second modulation scheme for a cost parameter, determining a resultant cost parameter of a modulation scheme, or selecting a modulation scheme. Yoshida teaches determining desired BER performance parameters (see col. 2, lines 36-40, col. 3, lines 18-34 & 42-49, col. 4, lines 18-25), the BER performance parameters are system parameters that are positive and get smaller the better a system operates which relates to applicant's claimed definition of a cost parameter. Honkasalo teaches a first and second modulation scheme (see col. 4, lines 25-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the device adapt to include defining a pulse function for a first and second modulation scheme for a cost parameter, determining a resultant cost parameter of a modulation scheme, or selecting a modulation scheme because this would allow for improved data transmission over a radio path using multiple modulation techniques.

Claims 15, 16, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gudmundson in view of Yoshida, Honkasalo and Maruyama.

Regarding claim 15 Gudmundson, Yoshida, and Honkasalo teach a device as claimed except for a modulation scheme that is MSK. Maruyama teaches a modulation scheme that is MSK (see col. 4, lines 53-55). It would have been obvious to one of ordinary skill in the art at

the time the invention was made to make the device adapt to include a modulation scheme that is MSK because this would allow for a data transmission system using various modulation schemes.

Regarding claim 16 Gudmundson, Yoshida, Honkasalo and Maruyama teach a device as recited in claim 15 and is rejected given the same reasoning as above.

Regarding claim 30 Maruyama teaches drawings defining a dual-band radiotelephone (see col. 4, lines 50-52 and FIG. 1).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Boesch U.S. Patent Application 6,137,826 discloses a dual-mode modulation systems and methods including oversampling of narrow bandwidth signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon J Miller whose telephone number is 703-305-4222. The examiner can normally be reached on Mon.-Fri. 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

***

September 26, 2003

WILLIAM TROST
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600